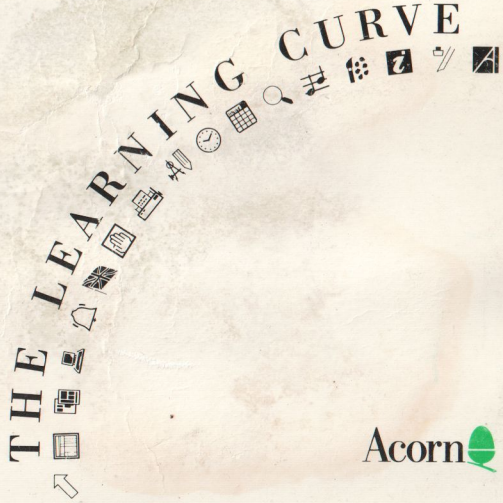
Genesis Plus

THE LEARNING CURVE



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Genesis was developed using the Oak Solutions Archimedes BASIC compiler.

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Introduction

Genesis Plus is an extremely powerful, yet simple to use system which allows you to create your own RISC OS applications. These applications consist of a collection of linked pages of information.

A typical page contains several rectangular areas called frames. Each of these frames may have information attached to it. For example, a frame may display text, graphics or even an animated sequence. Alternatively, it may contain an icon which performs an action such as running a separate program or playing a tune or sound sample.

Movement from one page to another is achieved via links from these frames. There can be many routes leading from a particular page because each frame is allowed to be linked to a different destination. This means that information can be presented more naturally than is possible with traditional database systems.

The layout of a page can be altered entirely through use of the mouse. Frames can be moved and resized and their contents are automatically updated; graphics are scaled to fit and text is formatted appropriately. Further control is provided by means of the menus obtained from individual frames and pages. For example, the menu from a text frame provides options for changing the style, size and colour, justifying the text and altering the style of individual words or phrases for emphasis.

In addition, 'buttons' can be added to pages. These are predefined parcels of operations which carry out particular processes. For example, they can add to a page one or more frames complete with special actions. A library of useful buttons is provided.

Uses for Genesis Plus

Genesis Plus is ideal for project work carried out by a group. It allows individuals or small teams to concentrate on a particular area which interests them and create their own page containing the information they have gathered. When all pages are complete, they can then be linked together in an appropriate order to form the final application. This application can then be used as a resource for others to access and individual pages can be printed out so that copies of the information can be kept alongside written work.

Applications can be tailored to suit all age groups. For young children, using multi-coloured text, animated sequences and a variety of sounds is an ideal way of holding their attention. Also, Genesis Plus allows you to hide the complexities of the computer away from them. The pages can be kept simple. The collection of icons which normally surround windows such as scroll bars and Back icons can be removed. Movement between pages can be made to occur in response to easily produced events such as a single click of a mouse button. In addition, frames can be locked so that they cannot be altered, accidentally or otherwise.

The example applications provided with Genesis Plus show some of the many different ways in which it can be applied. However, the list of possible uses is endless. Using Genesis Plus you can quickly and easily create an application which will present any collection of information in an attractive and flexible manner.

Related Publications

Genesis II is a separately priced product from Oak Solutions which provides a full authoring system for creating more sophisticated applications.

It provides a wide range of different linking tools allowing actions to be performed in response to pages being opened, keys being pressed, pointers entering or leaving a window etc. In addition, its built in script editor provides a simple method of building up actions using the underlying script language. This means that events aren't just limited to activating links to other pages. Instead an event can be made to turn on the hourglass, display a dialogue box, draw a pie chart... All by typing in just a few lines of script!

To further increase the flexibility of the system, a utility is provided for creating menus. These can then be added to frames and pages to replace the default ones provided. (To illustrate just how powerful Genesis II is, this utility is in fact a Genesis application!)

Genesis II also supports CSV (Comma Separated Value) files which can be used for creating fast, compact databases. In addition, spreadsheets and calculators can be built up using the numerical frames which can be created using simple menu options.

It is possible to upgrade from Genesis Plus to Genesis II.

Installation

Your Genesis Plus system consists of two discs. The first is the Editor disc. This contains the following:

!Fonts	The font manager and the Trinity.Medium font.
!Genesis	The Genesis Editor which is used for creating and altering applications.
!GenFiler	The Genesis Filer which is used for displaying the resources and pages associated with an application.
!GenLib	A library of resources such as drawings, sprites etc.
!System	A collection of modules required by Genesis.

The second disc is the Learning Curve Applications disc. This contains a number of example Genesis applications which are described in Appendix A, *Example applications*.

Genesis is designed for use under the RISC OS Desktop. On the distribution discs, the software is present in a ready to run form. However, it is strongly recommended that you should install the system onto either another set of floppy discs or a hard disc. You should then put the original distribution discs away in a safe place.

To install Genesis Plus, first enter the RISC OS Desktop. It may be that your computer automatically starts up in the Desktop in which case you have nothing to do. However, if this is not the case, you can enter it from BASIC or from the supervisor prompt by typing:

```
*Desktop
```

Installing onto floppy discs

You will require two blank formatted discs. Place the Editor disc in drive 0 and, using the mouse, point at the icon representing this drive and click the Menu button. From the menu which appears choose the **Backup** option. You will be asked if you are sure that you want to continue. Answer by pressing Y. You will then be prompted to insert the source disc in drive 0. You should already have placed the source disc in this drive, so just press the space bar. Then follow the instructions to swap the discs when necessary. When the process has finished, label the copy you have just made. Then repeat the actions outlined above to create a backup of the Learning Curve Applications.

Installing onto a hard disc

Open directory viewers for your hard disc and for the Learning Curve Applications disc. You may wish to create a new directory such as *Genesis* to hold Genesis and the examples. If so use the **New directory** option from the menu and then open a directory viewer onto the directory you have created. Then, drag the icons for the applications from the distribution disc directory viewer and drop them onto the hard disc directory viewer. This will copy them all across.

Do the same for the Editor disc to install everything except for **!System** (and **!Fonts** if you already have a font directory).

You should already have a **!System** at the top level of your hard disc which contains support modules for other applications etc. The aim is to end up with a **!System** on your hard disc which contains the most up-to-date versions of all the support modules which you require for Genesis *and* any other applications which you own.

At this point you should make a backup of your **!System** directory in case you accidentally delete a file.

Within each directory viewer, point at the **!System** directory, press and hold down the Shift key, double click with the Select button and then release Shift. This will open a directory viewer for each. Next, double click on the **modules** directory icons, to see the files which they contain. Point within each **!System.modules** directory viewer, click the Menu button, slide off the **Display** option and choose the **Full info** option. This will provide details about each module, including their dates of creation.

If a module is provided on the Editor disc which you don't already have, then drag its icon across from the floppy disc **!System.modules** directory viewer to the hard disc **!System.modules** directory viewer. If, however, a module is provided which you do already own then you need to check the dates of the two copies. You should only copy across the version from the distribution disc if it is a more recent version than the one you currently have. To replace a module you should first delete the old one and then drag the replacement into position. After upgrading **!System** you should re-boot your machine.

If you have a **!Fonts** directory, you should follow a similar process to add the new items if appropriate.

Creating an application

The first thing you should try doing with Genesis is to create an application of your own. This will show you how simple it is to use.

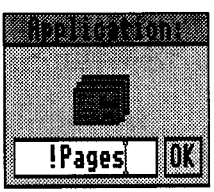
Making a new blank application

First, open a directory viewer onto your copy of the Editor disc and find the icon which is labelled **!Genesis**. Then, double click on this icon with the Select button. This starts up the Genesis editor and places the Genesis editor icon on the icon bar at the bottom of the screen.

At this stage, you need a work disc to hold your new application. If you are using a hard disc, then this is no problem. If you are using a floppy disc system then you should find an empty, formatted disc for this purpose. You should not attempt to store your applications on the Editor disc since there is very little room left on this disc and you would soon encounter Disc Full error messages. Replace the Editor disc currently in the disc drive with your work disc and open a directory viewer onto it.

Note that when using a floppy disc system you may occasionally receive messages from the Filer asking you to place either the Editor disc or your work disc in the drive. Whenever such a message appears, replace the disc currently in the drive with the one being asked for and click on **OK**. Note also that it is worth closing directory viewers onto floppy discs after you have replaced them because RISC OS asks for the disc back from time to time if you don't.

When you point at the Genesis editor icon with the mouse pointer and click the Menu button, the Editor menu will pop up. This contains three options: **Info**, **New** and **Quit**. Slide off the side of the **New** option and a dialogue box will appear as shown below:

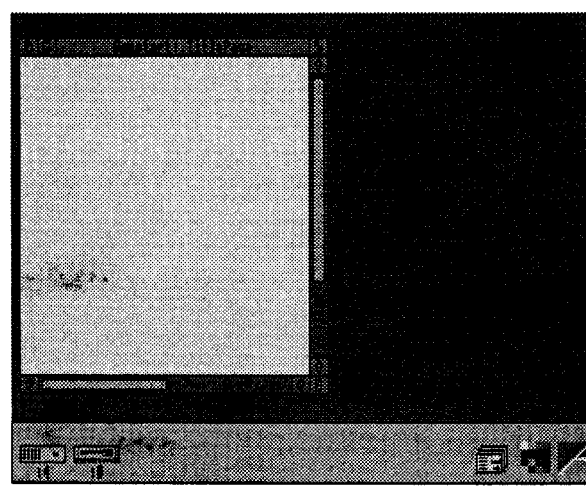


This represents the new Genesis application which you are about to create. You can, if you wish, alter the name of this application from the default which is **!Pages**. To do this, press the Delete key until the writable icon is empty and then type in the name which you want to use, for example **!Genstart**. You must start the name with a **!** character so that the Desktop recognises it as an application.

Drag the application icon from the dialogue box to your work disc directory viewer. When you drop the icon in the directory, the Genesis application will be created and, a few moments later, a window will appear containing the first page.

This window covers the whole screen except for the icon bar (unless you are in an unusual screen mode). You can use the Adjust size icon in the bottom right-hand corner of the window to alter the amount of the page which is displayed. Point at this icon, press the Select button and, with the button still held down, move the mouse pointer around the screen. As the pointer moves, the bottom right-hand corner of the window moves with it. Releasing the button drops the corner of the window at the current position. In addition, you can use the Title bar at the top of the window in a similar manner, to move the whole window around without altering its size.

Try these out now, to alter the size and position of the window so that the screen looks similar to the following:



Creating frames

The next thing to do is to create a frame within this page. This is achieved using the following sequence:

1. Point at where you want the top left-hand corner of the frame to be.
2. Press and hold down the Select button.
3. Move the mouse pointer to the bottom right-hand corner of the frame.
4. Release the mouse button.

During step 3, a dotted rectangle will appear indicating the current extent of the frame. The top left-hand corner of this rectangle is fixed to the position you chose in step 1, but the bottom right follows the mouse pointer as you move it around the screen. When you finally release the mouse button, a black rectangle will be drawn marking the border of the frame which you have just created.

Moving and adjusting frames

It doesn't matter if you don't get the size or position of the frame right first time, you can move frames around and alter their shape as often you like. Both actions are performed in a similar way.

To alter the position of a frame:

1. Point inside the frame
2. Press and hold down the Select button
3. Move the mouse pointer to re-position the frame
4. Release the mouse button

As the mouse pointer is moved during step 3, a dotted drag-box is used to indicate the current position of the frame. The position within the frame which was identified with step 1 follows the mouse pointer around the screen. The shape and size of the frame remain fixed. When the mouse button is finally released, the frame is moved.

To alter the size and shape of a frame:

1. Point inside the frame
2. Press and hold down the Adjust button
3. Move the mouse pointer to reposition the bottom right-hand corner
4. Release the mouse button

Again, a dotted drag box is used to indicate the current extent of the frame. In this case, the top left-hand corner of the frame remains fixed, but the position within the frame which was identified at step 1 follows the mouse pointer around the screen, moving the bottom right-hand corner with it. When button is released, the frame is resized.

Use these techniques to create two frames of roughly equal size, one above the other.

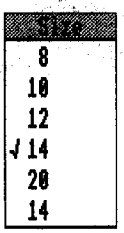
Adding text to a frame

When you have created a frame, you are then free to attach data to it. Various different types of data can be used, which will all be covered in full later. The most important of these is probably text.

To enter text into a frame, point within the frame, click the Select button to position the text cursor there and then start typing. Words will automatically be formatted so that they are not split between lines. If you make a mistake, you can reposition the cursor by pointing at the position in the text where the error occurs and clicking the Select button. Then the Delete key can be used to delete the characters, one at a time. Pressing this key on its own deletes the character before the cursor, pressing it whilst holding down the Shift key deletes the character to the right of the cursor. Alternatively, extra text can be added at the cursor position by typing in the characters required; the following text will be shifted to the right to accommodate each new letter.

For the purpose of the example being created in this chapter, all you need to type is the word **Archimedes** in the top frame and **Dog** in the bottom.

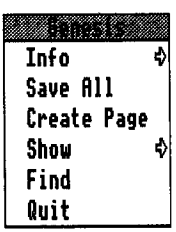
Once you have done this, there are many ways in which you can alter the appearance of the text. These can be chosen from the menu obtained when you point within the text frame and click the Menu button. The first option is called **Info**. Slide off this option and a submenu will be displayed. The options below the dotted line show the characteristics which are under your control; **Font, Size, Height, Text colour, Background, Format and Insert Style.** (**Background** has a tick next to it - ignore this for now, it will be explained later.) Sliding off any of these will display a further submenu or dialogue box showing the possible settings for each. For example, sliding off the **Size** option produces the following submenu:



The tick on this submenu indicates the current setting. To choose one of the others, point at it and click the Select button. The menus will then disappear and the text within the frame will be redrawn to reflect the change made. Try using the **Size, Text colour** and **Background** options to alter the appearance of your text. For example, increase the size of both to **20** then alter one frame so that it contains **yellow text on** a blue background.

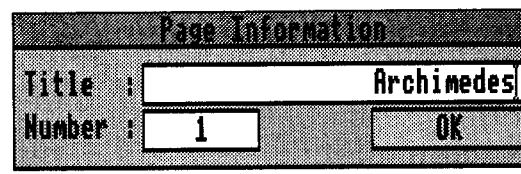
Creating a second page

To create another page, point at the Genesis icon on the icon bar and click the Menu button. The menu will now be different to the one originally presented by this icon. This is because you now have an application which you are working on and so an Application menu is displayed:



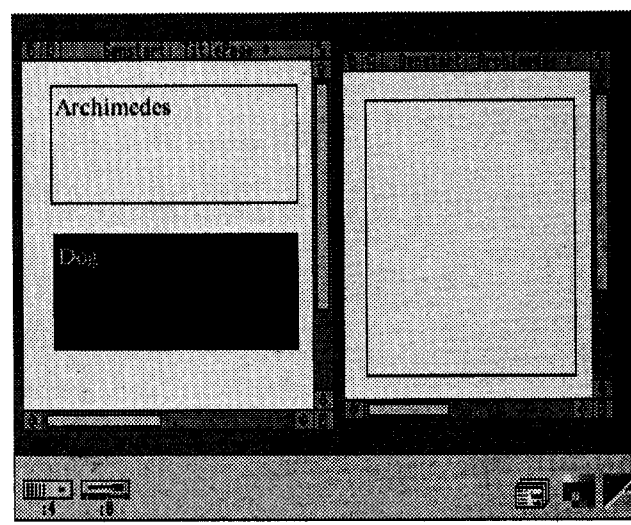
Previously, you had not yet created an application so the Editor menu was given. Choose the **Create Page** option and another blank page will be displayed.

At the top of the page, the title will be shown. This consists of the name of the Genesis application followed by the name of the page which is currently **<untitled>**. To give it a title, point inside the page, click the Menu button and slide off the **Info** option. When the submenu appears slide off its **Page** option and a dialogue box will be displayed. Point in the writable icon labelled **Title** at the end of the text and click the Select button. Then delete the current title using the Delete key and type in the new name, for example **Archimedes:**



To apply the change you have just made either press the Return key or click on **OK.**

Now, resize the page, position it and create a frame as described above, so that your screen looks similar to the following:



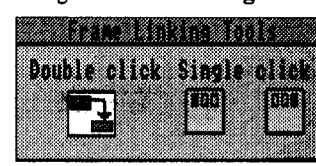
This time, you should try attaching a different type of data to the frame. The **!GenLib** directory of your Editor disc contains a number of draw files, sprites etc for you to use. To open a directory viewer onto **!GenLib**, point at the icon on the icon bar and click the Menu button to make the Application menu appear. Then slide off the **Show** option and choose the **GenLib** option from the submenu which appears.

You will be presented with a choice of directories. Double click on the **Draw** directory icon and a selection of draw files will appear. Point at the one called **Archimedes** then press and hold down the Select button. With the button still held down, drag the icon until it is over the frame which you created above and release the button. The contents of the draw file will be displayed filling the frame. One thing which you can do to improve the appearance of this drawing is to turn off the frame border. To do this, point inside the frame, click the Menu button and locate the **Border** option on the Frame menu which appears. This should be marked at the left by a tick. Choosing this option will remove the frame border. The next time you look at this menu you will see that the option is no longer ticked, indicating that the border is turned off. Choosing this option again will bring back both the border and the tick on the menu.

Linking

Now that you have two pages, you can create a link between them. For example, you might make a link joining the Archimedes text frame on the title page to the second page which contains the picture of the Archimedes computer.

Point at the Archimedes text frame and click the Menu button. The relevant menu option is called **Link to**. If you slide off this option, a dialogue box containing the **Frame Linking Tools** will be displayed:



The one you are interested in at present is the one on the left labelled **Double click**. This is known as the **standard link tool.**

To forge the link, use the Select button to drag this tool from the dialogue box and drop it on top of the second page (the one containing the picture of the Archimedes computer).

Before carrying on any further you should save the pages you have created. To do this, point at part of the title page which is not occupied by a frame and click the Menu button to make the Page menu appear. Then choose the **Save Page** option. Now repeat this process for the Archimedes page to save this as well.

To see the link in action, you need to close the Archimedes page to leave just the title page visible. To do this, click on the window Close icon (the cross near the left-hand end of the Title bar) with the Select button and the page will disappear.

The standard link tool causes the linked page to appear when the frame is double clicked on by either the Select or Adjust button. First try this with the Select button. Point within the Archimedes text frame and double click this button. The Archimedes page will appear looking exactly how it was when it was saved.

Now try closing the page again and double clicking on the Archimedes text frame with the Adjust button. The Archimedes page is opened as before but the title page is closed at the same time.

Using the Adjust button in this way has two advantages. The first is that it avoids cluttering up the screen with too many pages. The second is that it saves memory because the computer only has to hold details about one of the pages at a time, not both together.

To bring the title page back, click with the Select button over the icon on the icon bar. Do this now before proceeding to the next section.

Copying pages

Having made a page which is linked to the Archimedes text frame on the title page, you may wish to make a similar one which links from the Dog text frame. One method of doing this would be to repeat the process described above to create a new blank page, draw and position a frame (or frames) within it and finally attach some data to it. However, a simpler method is to make a copy of the Archimedes page.

To do this, point at part of the Archimedes page which is not occupied by the frame and click the Menu button to make the Page menu appear. Then choose the **Copy** option. After a brief period of disc activity the contents of this page will appear to be redrawn, leaving your screen looking exactly as it did before. However, what has actually happened is that a new page has been created on top of the old one with exactly the same contents.

(Note that if you accidentally point within a frame then a frame menu will appear. If you choose the **Copy** option from this menu then an individual frame will be copied rather than the whole page. What you should do instead is slide off the **Page** option to reveal the page menu which you require.)

This page is already a suitable size and has a frame positioned within it. Therefore, all that remains to be done is to change the title of it to something more appropriate and then to change the data attached to the frame, A suitable title is **Dog**, use the **Info → Page** option of the Page menu to alter the title to this. The data you should use this time is the sprite called **dog** which can be found in the **Sprite** subdirectory of **!GenLib**.

To change the contents of the frame, you can drag the sprite file icon, **dog**, from the directory viewer onto it. The current picture will be replaced by a digitised picture of a dog.

Then, create the link from the Dog text frame on the title page to the page you have just made. The process is the same as that used above, the steps are summarised below:

1. Point at the frame to be linked from and click the Menu button

2. Slide off the **Link to** option

3. Drag the standard link icon and drop it on top of the destination page

Single clicks

The single click link icons correspond to single clicks of either the Select or Adjust mouse button. Hence if the following was used:

then the page linked to would appear when the Select mouse button was clicked. The single click link icons can be more appropriate for use with younger children who may find double clicking difficult.

Saving and running your application

You have now created an application, albeit a rather small one, so you should save it and then try running it.

To save the whole application in one go rather than page by page, point at the Genesis application icon on the icon bar, click the Menu button and choose the **Save All** option. After a brief period of disc activity the menu will disappear. Now, display the menu again, and this time choose the **Quit** option. This will close down the Genesis application but will leave the Genesis editor icon on the icon bar.

If you open a directory viewer onto your work disc, the icon, **!Genstart** (or whatever you chose to call it) should be present. Drag this icon and drop it on top of the Genesis editor icon on the icon bar. The application will start up by displaying the title page. If you then double click on either of the text frames the links you created will be used to display a further page containing the appropriate graphics.

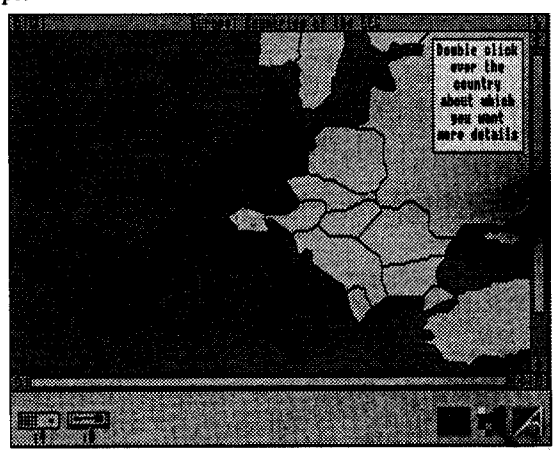
Ending the session

To end your Genesis session, display the Application menu by pointing at the icon on the icon bar and clicking the Menu button. From this menu choose the **Quit** option to close down the application. Then point at the icon once more and click the Menu button. This will display the Editor menu. From this choose the **Quit** option again. This will close down the editor and remove the icon from the icon bar completely.

Running an existing application

This chapter takes you through an existing Genesis application, to demonstrate what can be achieved using the techniques discussed above plus one or two other features of the system. The example being used is **!Europe** which is supplied on the Learning Curve Applications disc. You should ensure that you have made a copy of this disc as described in Chapter 2, *Installation* before proceeding.

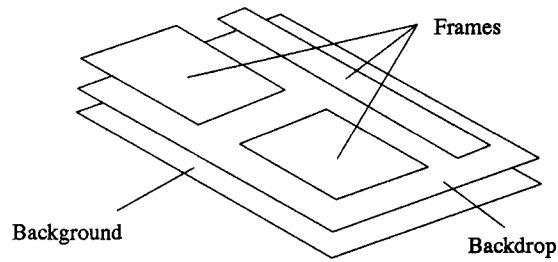
To start up this application, double click on the !Genesis icon in the Editor disc directory viewer as before. When the Genesis Editor icon is installed on the icon bar, open a directory viewer onto the contents of your copy of the Learning Curve Applications disc and drag the **!Europe** icon from the directory viewer onto the icon on the icon bar. The icon will change to that of the !Europe application and the first page of the application will be displayed. This contains a map of Europe:



Backdrops

At first sight, this page may appear to consist of one frame which contains a picture of a map of Europe, with a text frame containing the instructions at the top right. However, this is not the case. The map of Europe is not attached to a frame, it is the *backdrop* of the page.

The contents of a page can be thought of as being in three layers. At the back is the *background*, this can be any single available colour. In front of this there can be a *backdrop*. This can be a drawing, sprite, digitised picture etc which is drawn so that it fills the whole page. Finally, at the front, there can be a number of *frames* with data attached to them.

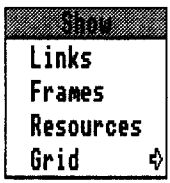


In the example you created, the background colour was set to the default colour of white and the pages did not have a backdrop added to them. This is why they appeared to be blank apart from the frame areas. The way in which the backdrop in the !Europe example was added to the page was by dropping the paint file containing the Europe sprite on top of a part of the page not occupied by a frame. In some ways, this means that the page itself acts like a special sort of frame.

Locating frames and links

Having discovered that the picture is actually part of the page, you may be wondering where the frames are. The one containing the text is obvious since it is obscuring a rectangular area of the backdrop beneath it. However, this is not the only frame which exists - the others cannot be seen because they are transparent and have their borders turned off. One way to discover where the others are would be to turn on their borders in a similar manner to the way in which you turned off the border of the Archimedes frame in the previous chapter. However, to do this, you need to display the Frame menu for each. This in turn means that you have to know where each frame is to be able to point inside it to obtain its menu. This appears to be a circular problem - you can't display a frame's border because you don't know where it is, but you can't find out where it is without turning on its border! However, a way out does exist.

Point at the bottom right of the map and click the Menu button to make the Page menu pop up. If you slide off the **Show** option, you will be given four choices: **Links, Frames, Resources** and **Grid**:



Choose the **Frames** option. This option makes all the frames on the page visible by displaying their borders in red. You can see that there are several of these, lying over individual countries. Repeat this action, but this time choose the **Links** option. Now, a red cross will appear in all the frames other than the one containing text.

This indicates that all the frames except for the text frame have actions associated with them. In this case, all the actions are links to other pages. If ever you are presented with a Genesis application which you are not familiar with, selecting this option will show you all the frames of interest.

Transparent frames

The other question which you may be asking is '*How can frames be made transparent?*'. Point at the text frame, click the Menu button and slide off the **Info** option. This will display the options for editing the text which you have already met. As was noted before, the **Background** option has a tick next to it. This means that the background is visible. If, instead of sliding off the option to reveal the choice of colours, you click on it directly, the tick will be removed and the background will be made transparent. The text will still be displayed but the backdrop will show through it. To make the frame background opaque again, repeat the procedure. Choosing the **Background** option toggles the state ie if the background is opaque, it becomes transparent and vice versa.

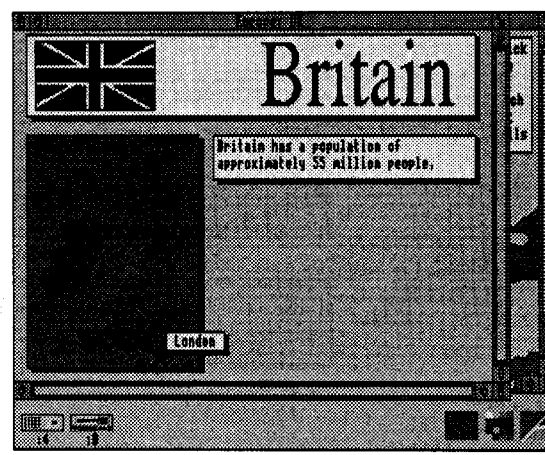
Therefore, the frames over the countries are simply empty frames whose borders are turned off and whose backgrounds are transparent. Using this type of frame is a useful technique for adding frames to a page unobtrusively. In this example, the aim is to use frames to allow the user to double click inside a country to obtain further details.

Note that some countries, such as Germany, are covered by several frames, not just a single one. Each of these frames is linked to the same page, ie the one which gives further details about Germany. There are no rules about how many frames can be linked to a given page. You can choose to have every link on a page leading to a different destination page. Equally, you can make them all link to the same one. In addition, frames on different pages can be linked to the same destination page.

In this case, more than one frame has been used to obtain a better coverage of the country. A better fit could be obtained for other countries as well by using several smaller frames to 'tile' the area. From the user's point of view, the application is meant to give the appearance that clicking anywhere on a country will bring up information about that country. However, at the moment, if you were to point at the top of France and double click, nothing would happen because there is no frame covering that area. Adding another frame here would improve the illusion which the application is trying to portray.

Selecting a link

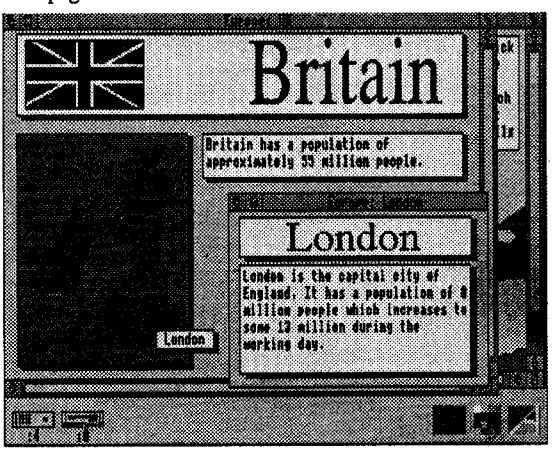
Having discovered where the links are, you can now double click inside one of the frames to move to another page. Try the frame over Britain to start with, using the Select button. This will display a page containing further information about the UK:



This is a good example of a 'typical' Genesis page. It contains a couple of different pictures and some text. Note that the text is in a mixture of sizes and colours. Within a single frame all the text has to use the same basic font. However, attention can be drawn to certain words or phrases by changing their colour or style. For example, by printing them in italics or bold. In addition, separate frames can have totally different characteristics. This is illustrated by the fact that the title is drawn in a larger size than the main body of text, which is in a separate frame.

This page also has a link to another about London. If you wish, you can see the link by choosing the **Show → Links** option from the Page menu.

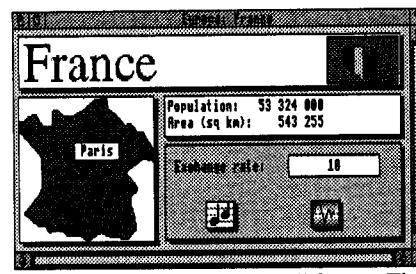
Double click on this text frame with the left mouse button to display the linked page:


Britain
Britain has a population of approximately 55 million people.
London
London is the capital city of England. It has a population of 8 million people which increases to some 13 million during the working day.
London

The sizes and layouts of these two pages have been planned so that the information about London can be displayed without any of the information about Britain being obscured. This attention to detail is easily achieved because when a page is saved, details about the size and position of the window it is within and the portion of the page which is currently on view is saved with it. Hence when it is recalled, it is automatically shown in the same state.

Different types of frame

Close the windows containing the London and UK pages so that the original map is visible again. Now double click over the centre of France with the left mouse button. This page contains text and graphics similar to that found on the page about Britain. However, it also contains a couple of new features:



At the bottom of the page there are two small frames. The one on the left contains the icon for a Maestro music file, the one on the right contains the icon for an Armadeus sound sample file. Like frames containing graphics, these frames can be moved and resized and their contents will alter accordingly so that the icons always fill the frame. Now, try double clicking within these frames with the Select button. In both cases the contents of the file attached to the frame will be played.

These types of data have been attached to a frame in the same way as a drawing or sprite, that is by dragging the file icon and dropping it onto an empty frame. However, instead of the contents of the file appearing within the frame extent as would happen with a drawing or sprite, the icon was drawn there. The contents of the file are only used when you double click on the frame.

Music and sample frames are said to have an implicit action associated with them. Double clicking within one will always play the tune or sound contained in the file. This prevents you from setting up other actions for them. If you point within one of the frames and press the menu button, you will see that the menu does not contain the **Link to** option.

Close the window containing the France page to return again to the original Europe map. Now try moving around some of the other pages within the application, You should find further examples of the different types of data you have met so far.

Different types of frames

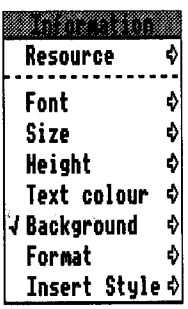
This chapter uses another example application to illustrate the various types of data which can be attached to frames. The example being used is **!AboutGen** which is also on the Learning Curve Applications disc.

To start up this application, install the Genesis editor icon onto the icon bar and drag the **!AboutGen** icon on top of it. The icon will change to that of the **!AboutGen** application and the first page will appear. (It is possible to double click directly on the **!AboutGen** icon in the Learning Curve Applications directory viewer without installing the Genesis editor first. However, this involves more disc swaps for users with only a single disc drive.)

The first page contains the names of several different types of data. Each of these is in a separate frame which can be double clicked on.

To obtain further details of any of the types, point at the one you are interested in and double click with the Select button. This will display a further window giving a description of the data type and one or more examples of its use.

The Frame menu for any of the example frames can be obtained by pointing within the frame and clicking the Menu button. In each case, the title of the menu will indicate the type of frame. The first entry on the menu will always be **Info**. Sliding off this will produce a submenu which is specific to the type of frame. For example, if the frame contains text, the submenu will be as follows:



Note, if the **Info** option is greyed out, then the frame is 'locked'. Refer to the section *Locked frames* at the end of this chapter for more details.

The option above the dotted line is common to all types of frame which have resources attached. Sliding off **Resource** gives information about the file associated with the frame, for example its name and size. The options below the dotted line differ depending on the frame type. These are the editing options which are available and it is these which are discussed below.

To return to the title page again, close the window by clicking with the Select button on the Close icon to the left of the Title bar. If you have edited the page, you will be asked if you want to save these edits. It is probably best while you are experimenting for you to discard your changes and return to the original version of the page by choosing the NO box. After each of the sections below, you will be expected to carry out the action of closing the page and returning to the title page in this manner.

Text frames

The first, and most commonly used, data type is text. You have already encountered several examples of text frames. However, it is well worth examining them again since they are so important.

If you double click on the Text frame, you will be presented with a small page showing text frames in use. Text can be added to frames in two ways. Either it can be typed directly into the frame, or a text file can be dragged and dropped on top of a frame. The result, whichever way the frame is created, is the same.

Text frames are different from other types of frame in that they can be edited directly. To see how easy this is, click with the Select button after the final word in the frame in the bottom left-hand corner of the page. An orange caret will appear marking the current text position. Then try typing the sentence 'And you can choose from several different formatting modes.' The first part of this sentence fits within the frame, filling the remaining space on the final line. However, when you reach the end of the line, the existing text is scrolled upwards to make room for the rest of the sentence so the top of the paragraph is no longer visible. Text is not scaled so that it fits the frame like other types of data.

You can scroll around the text using the arrow keys. Press the up arrow key until it reaches the top line of text. Then, press it once more. The text will scroll downwards revealing a missing line at the top.

Size and height

To make all the text visible, you could increase the size of the frame. However, as in this example, you may not have enough room on your page to make the frame any larger. An alternative method of fitting more text within a frame is to reduce the size of the lettering. To demonstrate this, you should first close down the Text window. Click on the Close icon and when asked if you want to save your edited page, reply by clicking on **NO**. If you open the page up again by double clicking on the Text frame, it will appear in its original form, without the edits you made. Then display the Frame menu for the top right-hand frame and slide off the **Info** option to obtain the submenu.

To decrease the overall size of the characters, slide off the **Size** option. This produces a further submenu from which you can choose a number of different text sizes. The current value, in this case 16, is marked by a tick. Select a smaller size either by clicking with the left mouse button next to an existing number or moving to the bottom line, removing the number there using the Delete key, typing in a new one and pressing the Return key. This latter method enables you to select any size you wish. Alternatively, you may have noticed that there is a **Height** option. This operates in the same way but only changes the height, leaving the width the same. You should now have plenty of room to add an extra sentence to this text frame without causing the existing text to scroll off the top.

If you return to the frame in the bottom left-hand corner and look at the current size, you will see that it is 0. This is the default size for the system font. You can draw the system font in other sizes, however the characters will be less even.

Colour

Similarly, you can change the colour of the text or the background colour within the text frame by sliding off the **Info → Text colour** or **Info → Background** options and choosing the shade required from the colours provided. In many cases, making the background colour of the text frames the same as the background colour of the page itself produces the most pleasing effect. If the colours are different, the frames stand out from the page and appear to be isolated blocks. If you click on the **Info → Background** option itself (rather than sliding off it) then the background becomes transparent. This can be very useful when writing captions for diagrams etc.

Font

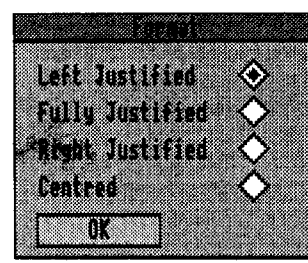
The **Font** option allows you select the style of text used. Sliding off this option will display the list of fonts which you can choose from. The currently selected font will have a tick by it, you can choose another by clicking on it. The contents of this list depend on the fonts you currently have available for use. Some software packages supply a number of different fonts with them. Alternatively you can buy fonts from various sources such as magazine shareware services.

By default, text frames will select the font **Trinity.Medium** which is one of the most commonly used ones. When using different fonts within a Genesis application, you should bear in mind that your intended audience for the application might not have the same set of fonts as you. If you use a font which they haven't got then Genesis will improvise by reverting to the system font, which is guaranteed to always be present, and scaling this to match the font size as far as is possible. This ensures that the general appearance of the text frame remains roughly the same.

Format

By default, any text which you enter is left justified. This means that the left-hand margin is straight - the text all starts in the same column. However, because it is not right justified as well, the right-hand edge is ragged. Many books and magazines choose to have their text fully justified to give an even appearance. This is achieved by altering the spacing between words so that the space which would have been left at the end of the line is shared out between the gaps.

To alter the justification of text within Genesis, point within the main text frame and click the Menu button. Then slide off the **Info ➔ Format** option. This produces a dialogue box as follows:

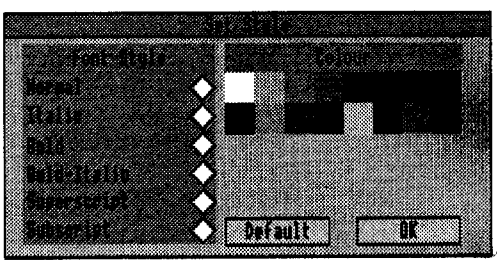


The three frames show three different formatting modes. The frame in the bottom left-hand corner has the text drawn so that it is left-justified. This is the default setting. The frame in the top right-hand corner has the text fully justified so there is a straight margin at either side. Finally the frame in the bottom right-hand corner shows centred text. This option is particularly suitable for titles, invitations etc.

Note that these formatting modes are available when you are using the system font. However, when you are using fully justified system font text, the spacing between individual letters is altered rather than the spacing between whole words.

Insert style

The **Font, Size** and **Colour** options from the submenu select the basic settings for the body of text within a frame. However, one or more characters within the text can be altered in certain ways, for example to emphasize them. Point in front of the word **fancy** and click the left mouse button to place the text cursor at that position. Then display the frame menu for the main text frame and slide off the **Info → Insert Style** option. This produces the dialogue box shown below:



Select the light blue colour and the **Italic** font style and click on **OK**. The frame will be redrawn so that all the text to the right of the current cursor position is drawn in the colour you have selected. The **Italic** setting will be ignored. This is because no italic version of the system font is available. However, if you changed the basic font of the text to one for which you had an italic version, then the text to the right of the cursor would change to italic as well.

To highlight just the word **fancy**, you need to move the cursor immediately after the word, display the **Set Style** dialogue box again and choose the **Default** option. This will change all the text after the word **fancy** back to basic frame font and colour. The result is that just the one word will appear in the different colour and style.

Note that when you use a new insert font style, any previous setting will be turned off. For example, if you insert a **Bold** style at the start of a line and then insert an **Italic** style half way along the line, the second half of the line will appear in italic only. This is because the **Italic** setting is replacing the **Bold** setting - the two are not combined. Similarly a colour change replaces any previous colour change.

Superscripts and subscripts

Superscripts and subscripts are slightly different. You cannot use these options to change existing text. If you select either of these options, then the next character you type will be a sub- or superscript character. Then the text will revert back to normal. This is ideal for chemical and mathematical formulae where you want the occasional number to appear in this way.

If you want a series of letters drawn, for example as superscript, then it is possible to achieve this by repeatedly selecting the superscript font style and typing the next letter. However, an easier method is to select the superscript font style once, type the last letter which is to appear, place the caret immediately before this letter and then type the rest of the text. If you click immediately before a sub- or superscript character and then type, the characters will appear in the same style. However, this is **not** the case if you place the caret immediately after one and try typing.

Draw frames

On the Drawings page are two examples of frames containing draw files. These can be produced by Draw, the drawing program supplied with all computers and many other externally available business and CAD (Computer Aided Design) packages. To attach a draw file to a frame, you just drag the appropriate draw file icon and drop it on top of the frame. The contents of the file are then scaled to fit within the frame.

Drawings can come in many shapes and guises. They can consist of pure line drawings or solid shaded pictures. Note that drawings can contain text. The bar chart example contains text for marking the axes, giving the colour key etc. However, because it is part of the drawing it cannot be edited within Genesis.

Any area of the drawing which is not explicitly coloured in is not considered to be part of the drawing itself. The colour of these areas can be set within Genesis using the single editing option available for draw frames which is called **Background**. Sliding off this option reveals a selection of colours to choose from. Clicking on the option directly toggles the state of the background between using the currently selected colour or being transparent so you can see through it to whatever is beneath. You can try this with the car example but not the chart because this contains a white rectangle as part of the drawing.

If you want to alter the draw file itself, you have to return to Draw or a similar application, make the changes you want, and replace the old version of the file attached to the frame with the new edited one. You cannot change the draw file within Genesis.

Sprite frames

Sprites are a different form of graphical object. They are produced by painting programs such as Paint which is supplied with the machine and others such as Artisan from Clares. In addition, digitisers which capture pictures of real objects store their images as sprites.

The Sprites page contains two frames containing sprites, a highly digitised image and a simpler example created using an art package. Like drawings, sprites are attached to frames by dropping the appropriate file icons on top of the frames. Note that a sprite file created using Paint can contain a number of different sprites. Genesis will use the first of these and will ignore the rest. This is similar to the behaviour of other applications. Therefore, it is sensible when using Paint to store sprites individually in separate files. This has the added advantage that the file name can be used to indicate its contents.

Sprites are also similar to drawings in that they cannot be edited directly in Genesis. Sliding off the **Info** option contained in the Frame menu of these two examples will reveal just one editing option, **Snap**. This does not affect the sprite itself, instead it alters the size and shape of the frame containing the sprite.

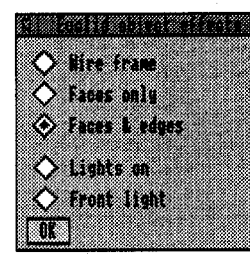
Try choosing this option for the top sprite. The frame will suddenly become much smaller. The size and shape selected is identical to the size and shape of the sprite when it was saved.

Using the **Snap** option has two advantages. The first is that it automatically restores the correct proportions for a sprite. Often it is difficult to make a sprite look right by guessing. The second advantage is that the sprite is redrawn much faster, because no scaling is required.

Euclid frames

Euclid is a separate package available from Ace Computing which allows three dimensional pictures to be created. These pictures can be attached to frames in the usual manner. Although you need the Euclid package to create pictures of your own, Genesis allows you to display existing pictures without you having to have the Euclid editor.

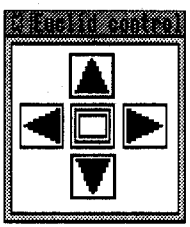
The Euclid 3D Pictures page contains two Euclid frames, both with the same 3D picture attached to them but viewed from different angles. Once you have a Euclid picture attached to a frame, you can alter the way in which it is displayed. Point at the top Euclid frame, click the Menu button to make the Frame menu pop up and slide off the **Info** option. This will present two Euclid specific choices: **Effects** and **Panel.** Slide off the **Effects** option. The dialogue box which appears provides two sets of radio buttons which can be used to select the model's appearance:



The first set of three allows you to choose between **Wire frame** drawings in which just the edges of the model are displayed, **Faces only** in which the separate solid blocks of the model are shown but the edges between them are not and **Faces & edges** in which both are visible. The last of these is the mode currently being used and is the most effective of the three. However, try choosing the wire frame mode by clicking on the appropriate radio button and then on **OK.**

The second set specify the lighting to be applied to the model. The type of lighting only has an affect when faces are visible. Return to the same dialogue box again and click on the **Faces & edges** button. Then also click on the **Front light** button before clicking on **OK** to apply these changes. This will cause the solid model to be displayed as though it is being illuminated from the front. Those parts of the model facing towards the light source will be lighter than those facing away. The other option, **Lights on**, illuminates the model using lights which were placed when the model was created.

Display the Frame menu for this frame once more, slide off the **Info** option and this time choose the **Panel** option. This will make the Euclid control panel appear:



Using this panel, you can alter the size, position and orientation of the model. The centre box controls the size. Try clicking once in the centre box with the Select button. This will make the model become larger. Now do the same with the Adjust button and it will become smaller again. If you hold down one of the buttons whilst pointing at this box rather than just clicking, the picture will zoom in or out. Then as soon as you let go, it will stop at the current size.

The arrows affect the positioning within the frame and the orientation. Try clicking on these arrows with the Select button. You should find that the model moves relative to the frame either up, down, left or right depending on the direction of the arrow chosen. Now repeat the action, but this time hold down the Shift key at the same time. Instead of the model moving sideways, it will rotate. The left and right arrows cause it to rotate sideways, the up and down arrows make it rotate so that you appear to be moving over or under it. Using these it is possible to create plan views and different elevations of a model.

To practise using these actions, try to make the view of the model in the top frame, the same as the view in the bottom.

Some Euclid models are provided in the **!GenLib** library for you to use in your own applications. However, it is well worth investing in a copy of the software so that you can create ones of your own. 3D is a very powerful visualisation tool which is becoming increasingly popular.

Film frames

Films are animated sequences. Ace Computing provides programs for producing different kinds of films. Splice produces films from Paint images, Tween from Draw pictures and Mogul from Euclid models. The Ace films page gives an example of a film frame which has attached to it a file containing an animated 3D sequence of the Olympic rings.

Point within the frame, click the Menu button and slide off the **Info** option. This provides four editing options: **Play, Stop, Step** and **Snap**. The **Snap** option is similar to that for Sprite frames described above. It changes the size of the frame to that of the original film size. By being in the correct mode and using this option, you can have a dramatic effect on the speed at which the film is replayed.

The other options affect the animation. Try clicking on **Stop**, the animation will stop and the contents of the frame will be frozen in their current state. Now, repeatedly click on **Step** with the Adjust button. This will take you through the individual stages of the sequence one at a time. When you want the proper animation to continue again, click on **Play**.

Film frames are often the highlight of a Genesis application, particularly if it is intended for young children. However, be warned that each film can potentially use up a large amount of memory so they should be used sparingly.

Music frames

The Maestro music editor which is supplied with your computer can be used to create music files. These in turn can be dragged and dropped on top of frames to attach the music files to the frames.

If the frame is empty when the file is dropped on top of it, it is converted into a Music frame and the icon representing the file is drawn within the frame. The Maestro Music page contains an example of this type of frame at the top. To hear the music played, double click on it. If you display the Frame menu and slide off the **Info** option you will find two editing options, **Play** and **Stop**. Clicking on the latter stops the tune immediately, clicking on the former starts it playing again from the beginning.

If, however, the frame is not empty when the Maestro file is dropped on it, the frame type is not changed. Instead, a play tune action is added to the frame which causes the contents of the file to be played whenever the Select button is clicked whilst the mouse pointer is over the frame. The draw frame on the Music page has had a Maestro file added to it in this way. Trying clicking the Select button to hear the tune.

These two different methods of adding Maestro files to a page both have their uses. By producing explicit Music frames you can make the frames which have tunes attached to them easily identifiable. However, by adding a play tune action to other types of frames you can make the appearance of musical frames more attractive.

Maestro files can be used to good effect to make applications more interesting. For example, the Europe demo contains a couple of examples. Instead of just describing each country using text and graphics, music is used in some cases to demonstrate various national anthems.

This feature also allows specialist musical databases to be compiled. For example a database of composers is not limited to just giving details of their life and works, if can also include musical fragments to demonstrate the type of music they wrote. Similarly, a catalogue of different instruments can contain examples of the type of sound they produce.

If your computer is linked to any musical equipment via the standard MIDI interface, then any sounds which Genesis produces will be output through this equipment.

Sample frames

Sound sampling systems are becoming increasingly popular. They allow you to capture speech, music or any form of noise and then edit it in various ways.

Genesis treats sound samples in a very similar manner to Maestro files. Sound sample files can be dropped onto empty frames to produce Sample frames. The sample can be heard by double clicking on the frame. Alternatively, they can be dropped onto non-empty frames. In this case the contents of the frame doesn't change but when you single click on the frame with the Select button the sound sample is played. Take a look at the two examples, one of each type, supplied on the Sampled Sound page.

Sample frames offer just one specific option, **Play**. Clicking on this plays the sound sample. Note that sound samples take over the machine. Whilst they are being played you cannot do anything else. Also, you cannot interrupt them - once they've started they'll continue until finished.

One obvious application is for helping in the teaching of foreign languages. The pupil can see the word or sentence on the screen and hear it being said at the same time without the need for additional tape recorders etc.

Other resource frames

You have now seen all the types of resources which Genesis recognises and treats in a special way. However, there are many other types which have not been mentioned, so what happens if you try to attach one of these to a frame? The answer is that Genesis provides a default action for all types of data which it does not specifically recognise.

When an unknown icon type is dragged to a frame and dropped on it, the visible effect is that the icon is drawn within the frame. In addition, an appropriate action occurs when the frame is double clicked on. The action is the same as that obtained when the icon is double clicked on within a directory viewer.

For example, create a new page and make a frame which is roughly two centimetres square. Then open a directory viewer onto **!GenLib** by choosing the **Show → GenLib** option from the Application menu. When the contents of this directory have been displayed, locate the **Draw** subdirectory icon and drag this icon onto the frame you have just created. This places the directory icon in the frame. Normally, if you double click on a directory icon within a directory viewer, another directory viewer will appear displaying the contents of the second directory. Therefore, this is the action which should occur when you double click on the frame. Try this now, for confirmation.

Similarly, if you use an icon representing an application such as PipeDream, then double clicking on the frame will start up the application. For the icon of a PipeDream document then PipeDream will be started up and the document will be loaded into it ready to be edited. If you have bought other applications for your computer which create files of a particular type then try this out now for yourself.

Word frames

There is another type of frame which can be created in Genesis called a word frame. This is a very simple type of frame which doesn't have a resource file attached to it. Instead, it contains a short string which is stored directly as part of the frame definition. It can contain a single row of characters which are displayed in the centre of the frame. If the frame is not wide enough to hold all the characters then the string will be clipped to the sides so that as many characters as possible are displayed. These characters can only be drawn in the standard system font. However, the size and colour of them can be altered.

Every frame which you create starts out as a word frame, this is the default type. To see this, create another frame on your new page. Then display its Frame menu. You should see that the title of the menu is **Word**. Sliding off the **Info** option displays a submenu as usual. Note that the usual **Resource** option has been replaced by **Word**. In addition, the following editing options are available: **Size**, **Height**, **Word colour** and **Background**.

Word is the option provided to allow the characters to be entered or changed. Sliding off this option will display a dialogue box containing the current contents of the frame. You can move around this using the left and right arrow keys. Pressing the Delete key will delete the character before the cursor, pressing the Copy key will delete the character to the right of the cursor. If you type a character, it will be added at the current cursor position, all characters to the right will be moved along to make room for it. To update the frame so that it reflects any changes, press the Return key. At any time before this, you can click with any of the buttons elsewhere on the screen and the changes will be forgotten. Try out this option, to place the string **Hello** in the frame you have just created.

Size and **Height** allow the size and shape of the characters to be altered. **Word colour** and **Background** give a choice of colours for the text or background. The background can also be made transparent by clicking on the **Background** option directly.

A newly created frame tends not to remain as a word frame for very long. If you click in it with the Select button then it automatically changes into a text frame so that characters can be entered. This happens even if you don't actually enter any text. Even clicking within the frame in order to move it around the page is sufficient to convert it. If you wish to make the frame remain as a word frame, it is important to enter a word string into it as soon as it is created. Once it contains such a string it is safe from accidental conversion.

Locked frames

All frames can be locked by pointing within them, clicking the Menu button and choosing the **Lock** option. Then, when you next look at the frame menu, many of the options (including **Info**) will be greyed out so the frame cannot be accidentally altered. In addition, you will not be able to drag a new resource onto the frame or alter its size or shape in any way.

You can unlock a frame by choosing the **Lock** option once more. Choosing this option toggles the state between being locked and unlocked.

Backdrops, grids and windows

You have already met the idea of a page having three layers with a background colour at the back, a backdrop in the middle and frames at the front. The different sorts of frames which are available were covered in the previous chapter. This chapter takes a more detailed look at the other two layers.

In addition, every page is contained within a window. The attributes of this window are discussed here to show you how you can turn off some of the icons if you wish.

Background colours

Create a new application using the default name **!Pages**. The process is described fully in Chapter 3, *Creating an Application*, however the steps are summarised below:

1. Open a directory viewer onto the Editor disc
2. Double click on the **!Genesis** icon
3. Open a directory viewer onto a work disc where the application is to be stored
4. Point at the icon on the icon bar and click the Menu button
5. From the menu produced, slide off the **New** entry
6. Drag the icon from the dialogue box into your work disc directory viewer

This will create an application with the default name of **!Pages** and display the first page.

Currently the page looks blank; it contains no frames, no backdrop and the background colour is set to white. Point within the page, click the Menu button and slide off the **Background** option. This will display a submenu containing two options, **Colour** and **Backdrop**. The **Backdrop** option will be greyed out. This is because you haven't got a backdrop on your page at the moment.

Slide off the **Colour** option to see the range of colours available and click on one to choose it. The whole page will be redrawn in that colour. If you try creating a frame on the page, the frame background will be white by default making the frame look like a patch stuck on top of the background.

However, you can change the frame background to be transparent to allow the background colour to show through by clicking on the **Info → Background** option of the Frame menu. This leaves just a black border showing round the frame.

In addition, if you click on the **Border** option of the Frame menu, the frame will become totally invisible.

After trying this, tidy up by deleting the frame you created. To do this, point within the frame, click the Menu button and select the **Delete** option. Note that this option is separated from the others by dotted lines. This is to help to identify it easily so that you do not select it by accident.

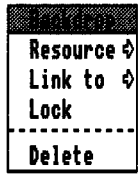
Backdrops

To add a backdrop to a page, you just drag a file and drop it onto any area of the page which is not occupied by a frame. Therefore, you can think of the page as being similar to a single large frame in this respect. However, you must use either a sprite or draw file; you cannot have films as backdrops for instance.

Try this now. Open a directory viewer for **!GenLib** by choosing the **Show → GenLib** option from the Application menu and double click on the **Draw** subdirectory icon. Then choose a draw file, say **Balloons**, and drag it onto your page. The contents of this file will be scaled to fit the page, with any non-shaded areas remaining in the background colour.

To see what happens when you try using a different file type, open up the **Euclid** directory and try dragging one of the Euclid files onto the page. When you drop the file nothing will happen, it will just be ignored.

Now that your page has a backdrop on it, if you display the Page menu and slide off the **Background** option, the **Backdrop** option will be available. Slide off this to see the submenu produced:



Backdrop events

The second option in the submenu, **Link to**, you may be slightly surprised at. This was the option you used previously to create a link from a frame to a page. However, you can also create links between the backdrop and a page. Reduce the size of your window so that it occupies just the left-hand side of the screen. Then create a second page by displaying the Application menu from the icon on the icon bar and choosing the **Create Page** option. Reduce the size of this page as well and move it to the right-hand side of the screen so that both pages can be seen side-by-side.

Now create a link from the backdrop on the title page to the second page. Point inside the first page and click the Menu button. Slide off the **Background → Backdrop** option to see the submenu drawn above. Now slide off the **Link to** option. This produces a display of the three link tools. Choose the standard link tool, the one labelled **double click**, and drag this icon on top of the second page.

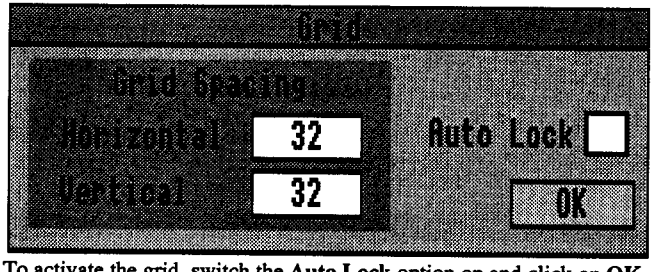
To see the backdrop link in action, select the **Save all** option from the Application menu to save both the pages and then click with the Select button on the Close icon of the second page. Finally double click with the Select button anywhere on the first page's backdrop. The second page will appear again.

The backdrop link will be activated when you click anywhere on the backdrop which is not covered by a frame. To see this, create a frame on your first page to obscure part of the drawing. Close down the second page and try double clicking within the frame. The second page does not appear. This is because the double click event is only being looked at by the frame and the frame cannot act on it because it hasn't got an action defined. If, however, you double click on the area surrounding the frame, the second page will appear as before.

Now try deleting the backdrop by choosing the **Delete** option from the **Background → Backdrop** submenu. The drawing will disappear leaving the page drawn in the background colour with a single white frame on top of it. If you try closing the second page and then double clicking on the background nothing will happen. When the backdrop was deleted, its link to action was deleted with it.

Grids

Whether or not you are placing frames on top of a backdrop or a blank page, it is often useful to be able to position or size them accurately, for example in neat rows and columns. A grid is available to help you achieve this. Slide off the **Show → Grid** option from the Page menu to produce the following dialogue box:



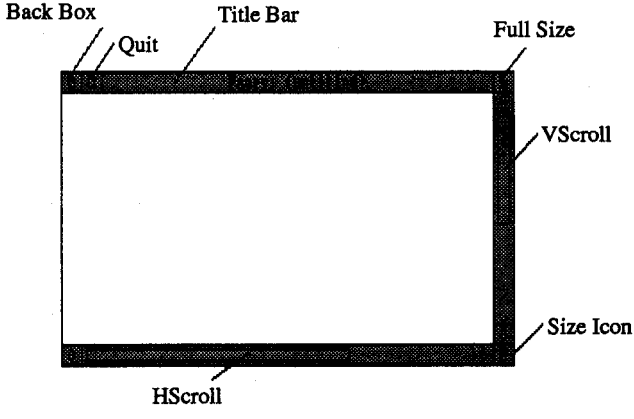
To activate the grid, switch the **Auto Lock** option on and click on **OK**. Now, frames which are subsequently created or altered will have their corners snapped to the nearest grid point.

The **Horizontal** and **Vertical** settings allow the spacings between the grid lines to be altered. The default values of **32** produce a medium resolution grid, with the grid lines spaced at 32 units apart.

To see the grid on the screen, click on the **Show → Grid** option. Note that the grid can be displayed on the screen independently of whether the grid snapping mechanism is active. Clicking on **Show → Grid** a second time will toggle the grid display off again.

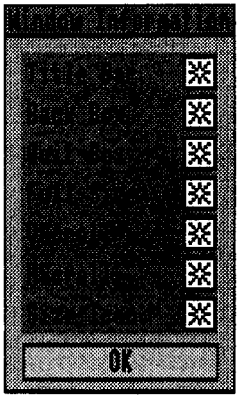
Window attributes

Whenever a page is created it appears within a window. This window, by default, has several icons and bars surrounding it:



However, you can remove one or more of these if you do not wish to allow the user to have access to them. For example, if you want to ensure that the window stays the same size, you should remove the Size and Full Size icons. Similarly, if you don't want the window to be moved, you can turn off the Title Bar so the user has nothing to drag it around by.

To do this, point within a page, click the Menu button and slide off the **Info → Window** option. This will produce the following dialogue box:



Currently all the option boxes have stars in them which means that all the features will be present. To turn off a feature click in the option box to remove the star. When you are happy with your selection click on **OK** and the window will be redrawn.

Note that certain combinations of features are not allowed. For example, if you turn off the Title bar, the Back Box and Quit Box disappear as well. In addition, if you remove both the scroll bars, the Size Icon will be removed with them.

Do take care, when removing icons, to think of all the consequences. For example, if a page is covering the icon bar and you turn off all the options, you won't be able to access the application menu to **Quit** from the application.

Buttons and actions

Within Genesis you can perform the basic steps of creating frames, adding resources, saving pages etc using the mouse and the various forms of menus. However, not all the system's features are provided in this way. Many, including several advanced ones, are provided by means of *buttons*.

What are buttons?

Buttons are predefined parcels of operations which have particular effects when you drop them onto a page. For example, dropping a button onto a page might add a ready made frame, complete with special actions, to the page at the position it is dropped. Alternatively a button might affect the page in a more general way, for example by altering the window definition to turn off all the window icons.

Using buttons

Buttons are very easy to use. You simply drag the relevant button icon from a directory viewer and drop it on to your Genesis page.

All the buttons provided with Genesis are stored in the **Button** subdirectory of **!GenLib**. To investigate the buttons provided, you need a Genesis application. Either create another new one as described in Chapter 3, *Creating An Application*, or use one which you made earlier by double clicking on its icon in the directory viewer of your work disc. As selected buttons are described in turn below, try adding them to your page so you can see for yourself what they do.

Up, Down, Left & Right

These four buttons are the most straight forward of them all. They simply create sprite frames displaying arrows pointing in the appropriate direction:

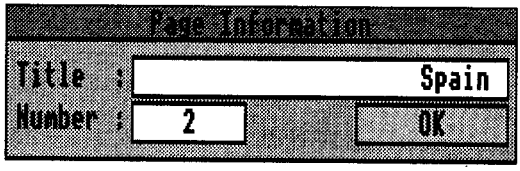
These frames are centred at the position at which you drop the button on the page. Once they have been added to the page you are free to move them and alter their sizes however you wish. They have no actions attached to them initially, but you can create links from them etc just like you can with frames that you create by dragging them open.

One of the reasons for using buttons, which is illustrated by these examples, is to save time. Instead of creating a frame, adjusting it to the correct size and dragging in the resource file, you just drop the button on the page.

Previous, Next, Home & Last

These buttons create sprite frames containing the sprites displayed below:

The frames each have an action associated with them taking you to the previous, next, first and last pages in the application. When you create a page it is given a number, the title page being number 0, the next being number 1 and so on. You can see the number of a page by sliding off the **Info → Page** option of the Page menu. For example:



This was obtained from the page about Spain in the **!Europe** application. It shows that the page is number 2.

The actions of the **Previous**, **Next**, **Home** and **Last** frames created by the buttons rely on the numbers of the pages to determine the page order. Hence double clicking on the **Previous** frame will take you to the page whose number is one less than the current page. For example, from the Spain page it would take you to page number 1 which is the page about the UK.

Using buttons like these throughout an application ensures that consistency is maintained and makes the application easier to use.

Another

The buttons above provide simple actions, ie links to another page. However, it is possible for buttons to carry out a series of more sophisticated actions. The Another button is a good example of this. When the Another button is dropped on a page, a frame appears at the pointer position as shown below:

When this frame is doubled-clicked on, three things happen:

1. A new page is created. The layout will be exactly like the current one. However, not all the resources will be copied across so some frames will appear blank. Specifically, text is not copied so all text frames will be empty. For all other kinds of frame, the resource will be copied if the frame is locked, but not otherwise.

2. The sprite contained within the frame created by the button changes from the **Another** sprite to the **Next** sprite.

3. The action associated with the frame created by the button changes to be a link between itself and the new page.

The use of the **Another** button provides an excellent way of allowing multiple copies of a page to be created. For example, if you wanted to create a multi-page card index database then the **Another** button would be an ideal tool to use.

When one card was full, double-clicking on **Another** would provide a new blank page in the same format (including having an **Another** button in the correct place) and set up a link between the existing page and the new. Hence, use of **Another** provides an endless supply of new blank cards.

Frames within the cards for holding textual information would automatically be emptied ready for the new data. Since word frames do not have a resource associated with them, they are automatically copied. Therefore, the labels for the pieces of information can be replicated by using word frames to hold them. With other types of frame you can choose whether to copy the resource or not by locking the frame or leaving it unlocked.

FindText

This is another example of a more complex action. This button creates a frame into which you can enter the text to be located. The frame has an action set up for the double click event which causes the search to be started. This search finds and opens all the pages containing the text.

BackDrop

As mentioned earlier, buttons don't always create frames. This example adds a backdrop to the page instead. The backdrop added is an empty one so that nothing will appear on the screen. However, it will enable you to set up links between the backdrop area and other pages.

MODE16

MODE16 is an example of a button which performs an operation that you can't carry out using menu options. When you create a new Genesis page, its maximum extent is such that it fills the whole of the screen in screen modes such as Mode 12. However, wider modes exist such as Mode 16.

This button changes the maximum size of the page so that it occupies the whole width of a Mode 16 screen.

A3Land, A3Port, A4Land & A4Port

These buttons also change the page size and shape. However, instead of altering the page so that it corresponds with a particular screen mode, these buttons alter it so that it corresponds with a particular paper size.

These buttons should be used when you are creating pages which are to be printed out at a later stage. They allow you to alter your page to the appropriate paper size (A3 or A4) and orientation (landscape or portrait). This enables you to see the area you have to work with.

Action scripts

Buttons add definitions to a page. These are often definitions of new frames or backdrops to be added. Alternatively they can be page definitions which affect the amount of work area you have available etc.

Action scripts differ from buttons in that they do not contain definitions. Instead they contain just action statements. When an action script is dropped onto a page, these actions are carried out immediately.

Grid32 & Grid64

These alter the horizontal and vertical grid spacings to 32 or 64, and turn the **Auto Lock** option on. This means that frames which are subsequently created or altered will have their corners snapped to these medium or large grid positions.

SnapToGrid

Moves the corners of the frame it is dropped on such that they lie on the nearest grid positions. The resulting frame will always be at least one grid square in size. If the frame is so small with respect to the grid spacings that two corners would move to the same position then the one nearest to the bottom left of the frame moves there and the other jumps to the next position either above or to the right as appropriate.

PlayAll

Plays each of the sound samples contained in the **Sample** subdirectory of **!Genlib** in turn.

PrintAll

Prints all the pages in the current application using the default printer options of **Portrait, Full page** and **Retain shape.** This action script provides the quickest method of printing out an entire application.

Locating and printing pages

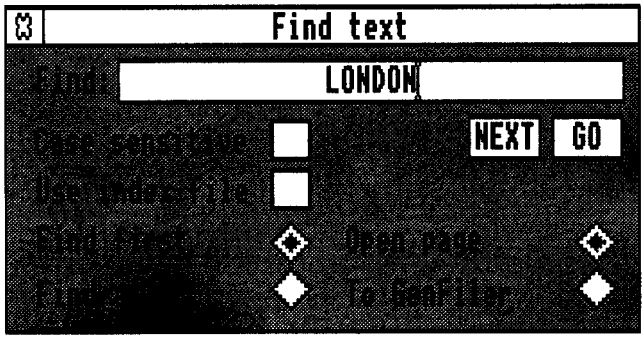
This chapter examines two very important topics; how you can locate pages containing a particular piece of information and how pages of interest can be printed out.

Searching for information

However you store information, whether it is on paper or on computer, you need a method of locating particular items at a later date. For example, if you create an autobiography of a famous author, then you might want to find all references to a particular book he wrote. The slow method would be to look through all the pages in the autobiography scanning them for the title you are interested in. A paper book would normally contain an index allowing you to look up at least the main references. Similarly, Genesis also provides a short cut for locating the relevant pages.

The find facility

Start up the **!Europe** application again. When the first page has appeared, display the Application menu and choose the **Find** option. The **Find text** dialogue box which appears contains a writable icon for the text you want to find and various other option boxes and radio buttons which you should ignore for now. Type **LONDON** into the writable icon labelled **Find** as follows:



Then click on **GO**. What happens now is that each page of the **!Europe** application is searched to see if the text you have entered appears in any of the pages. As soon as a page is found, it is displayed on the screen and the search stops. If the text isn't found, nothing happens.

In this case the text does exist in the application. The page displayed will be the UK page which has a text frame marking the position of London on the map of the country. When this page appears, it covers the **Find text** dialogue box so you will need to choose the **Find** option on the Application menu again to make it reappear. When you have done this, click on **NEXT**. This will find and display the page about London. If you now try clicking on **NEXT** again, nothing will happen because no other pages mention London.

Close down the London and UK pages and try searching for **LONDON** again. However, this time, click on the **Find all** button before you **GO**. This causes all the pages containing the text to be displayed in one go - the search does not stop as soon as the first one is found. You should therefore find that both the UK and London pages have appeared.

Note that there is a limit to the number of pages which can be open at once. This limit is 16. Once the limit is exceeded, 'older' pages will be closed down to make room for the new ones. In addition, if you are using a machine with a limited amount of memory, you may find that trying to open several pages at once causes the computer to run out of memory altogether.

Close down the two pages again and try one final search for **LONDON** having clicked on the **Case sensitive** box beforehand. This time nothing will be found. This is because the option makes the case of the text important. Only pages containing the word **LONDON** in capital letters will be found. Because all occurrences of it are in the form **London** with just an initial capital they are ignored. When this box is empty, any case is accepted. Therefore normally **LONDON** will find **LONDON, london, London, LONDon** etc.

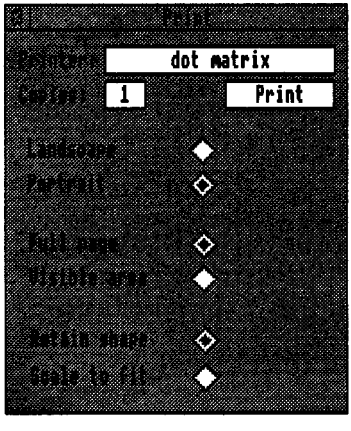
For most applications, you should leave the **Case sensitive** option off. Usually you will only be interested in whether the text appears or not, the case of it will be irrelevant. However, there may be occasions when this is needed. For example, when creating an application you may decide to highlight particular words by entering them in capitals when they are an important part of the text. You can then look just for these occurrences and ignore the lower case, less important, ones.

In order to understand the option, **To GenFiler** please refer to Chapter 9, *The Genesis filer*. The **Use index file** option is used to make the searching look at a separate index file to find occurrences of strings rather than examining each file within every page which can be rather slow.

Printing

From within Genesis you can print out copies of any of the pages in an application. However before you attempt to do so, the appropriate RISC OS printer driver must have been run so that the format of the output is correct for your particular make of printer. Details of how to set up and use printers are given in the documentation provided with your computer.

To print out a copy of a particular page, display the Page menu and locate the **Print** option. Clicking on it will display the following dialogue box:



The Genesis filer

This chapter covers the actions of the Genesis Filer. This is the part of the Genesis system which is responsible for the general handling of the pages and resources contained within a Genesis application. Its use is fully automated; whenever it is required it will be started up and its icon will appear on the icon bar at the bottom of the screen to indicate that it is running.

Resources

The usual way of adding pictures, music, speech etc to a Genesis page is to drag a copy of the file containing the data and drop it onto a frame. When you save your page, Genesis saves with it a copy of all of these files in order that it can reconstruct the page next time you look at it. These files are known as the *resources* belonging to the page.

In some cases you may want a copy of a certain picture on a number of different pages. This can obviously be achieved by simply dragging the picture file into each page as required. However this will waste disc space since a copy of the file will be saved with each page. To overcome this wastage, Genesis allows resource files to be *shared* between all the pages within a Genesis application. When you make a resource shared, it is held centrally by the application rather than once for each page.

To see all the local resources for a given page, the Genesis Filer is required. Display a page and choose the **Show → Resources** option from the Page menu. This will use the Genesis Filer to open a resource viewer showing all the resources which belong to that page.

To demonstrate this, an example is needed. Start up the **!AboutGen** application and display the Drawings page. Then point within the page, click the Menu button and choose the **Show → Resources** option. The following resource viewer will be displayed:

The **Printer** icon will contain the name of the currently installed RISC OS printer driver. You should check that you have installed the correct one before continuing. If this icon contains **None**, then there is no printer driver currently installed and an error will be given if you try clicking on **Print**.

Below this is a writable icon for you to select how many copies of the page you want printed. The default is 1, however you can increase this if you wish.

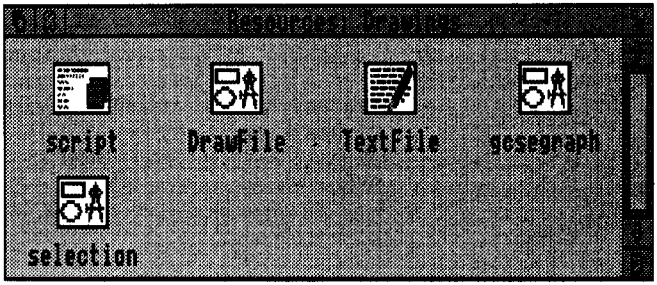
The three sets of radio buttons allow other options to be set:

Landscape / Portrait allows you to choose the orientation of the printed page on the paper. **Landscape** printing has the longer side of the paper horizontal, **Portrait** has the longer side of the paper vertical.

Full page / Visible area lets you select how much of the page to print. **Full page** means that the full contents of the page will be printed even if only a small part is currently visible within the window. **Visible area** means that only the part of the page currently visible will be printed.

Scale to fit / Retain shape determines the shape of what is printed. **Scale to fit** causes the output to be printed on the full extent of the paper, stretching or squeezing the text and graphics appropriately. **Retain shape** means that the page will be printed so that the aspect ratio of the text and graphics remains the same, ie no stretching or squeezing will take place.

When you have set the options you want, click on the **Print** button to start the printing. To interrupt the printing at any time, press the Esc key.



These resources consist of three draw files, one text file and a script file which describes the page. This is what you might have expected since the page contains three draw frames (including the title) and one text frame providing the description.

Now, point at the application icon, click the Menu button and choose the **Show → Resources** option from the Application menu which pops up. This displays another resource viewer for the resources which are shared throughout the application. In this case, the resource viewer is empty indicating that there are no shared resources. Again, this is reasonable because all the pages are about different things.

To make a resource shared, you need to move it into the shared resource viewer and remove it from all local resource viewers. Try this with one of the draw files. Drag the file from the local resource view to the shared resource viewer to make a copy of it. Then, click the Menu button whilst pointing at the original version and choose the **Delete** option to remove it. Finally, to preserve this change, you need to close down the page, without saving it.

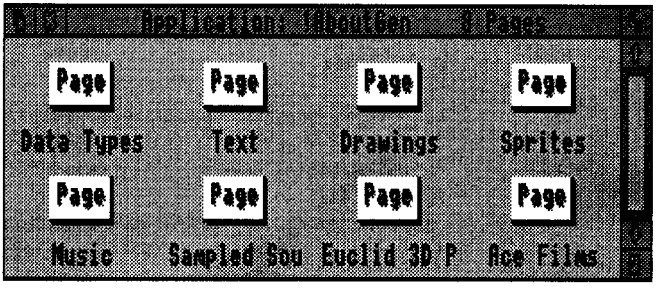
Note that you should not attempt to share text and film resources. To understand why text resources cannot be shared consider the case where the same file was on display on two different pages. If you tried to alter them both, there would be no way of telling which set of changes would be kept and which set would be lost.

All other types of resource you should share whenever they are required on multiple pages. Besides saving disc space, sharing a resource can save computer memory. If two pages which use the resource are open at the same time, then only one copy of the resource is loaded into the computer's memory.

However, do not be tempted to share every resource you use 'just in case'. There is no benefit in having a resource shared if it is only used once. In fact the area in which shared resources reside can hold only a certain number of files. Therefore if you try to share everything, you could well find yourself reaching the limit. The actual number you can have is dictated mainly by the disc format you are using although other factors such as the number of pages in your application also play a part. The recommended limits are 20 for L format discs and 50 for all other formats including hard discs. For compatibility across systems you should limit yourself to the lowest of these values.

Pages

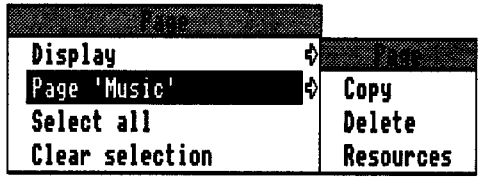
Another action of the Filer can be seen by pointing at the application icon, clicking the Menu button and choosing the **Show → Pages** option. This displays a page viewer giving details of the pages held within the application. An icon for each page is displayed together with the first 12 characters of its title:



The Filer Pages menu

This provides an easy method of manipulating pages. Point at one of these icons, click the Menu button and a Pages menu will pop up. The first option is **Display**. Sliding off this and choosing **Full Info** from the submenu will provide the page number in addition to its name.

The second option will be called **Page** followed by the title of the page, for example **Page 'Music'**. Now slide off this option to obtain the submenu:



Copy provides an alternative method of copying a page. The new page will be an exact replica of the first.

Delete allows you to delete a whole page. This is the only way to delete a page in Genesis. It was felt that deleting a page is such a drastic step to take that such an option should not be placed where it could easily be selected accidentally and therefore it is only available via **!GenFiler**.

The final option of the submenu is **Resources**. Selecting this will display a resource viewer showing the resources which are local to that page. An alternative way of achieving the same result is to point at one of the page icons, hold down Shift and double click with the Select button.

If you have more than one page selected, the second option of the Pages menu will change to **Selection**. Only the **Delete** option will then be available from the submenu.

The last two options from the Pages menu are **Select all** and **Clear selection** which select or de-select every page within the viewer respectively.

Opening pages directly

Another feature of the Page viewer is that you can double click on any of the icons within it to make that page appear on the screen. Try this now by closing down all the pages you have open and double clicking on the **Text** page icon. The page describing text frames will be drawn at the front of the screen. This provides a quick method of checking the contents of any page.

You can obtain a page viewer by starting up **!GenFiler** and dragging an application onto its icon on the icon bar. Hence, you can obtain page information without the application being in use. If you then double click on one of the page icons, this will start up Genesis itself and then the application and will finally start the display at the page selected.

Making links directly

The page icons in the Filer can also be used to create links. Previously, you have created links by dragging a link tool obtained via a Frame menu onto another page. However, with the Filer, you can make a standard link by dragging a page icon directly onto a frame. This will be activated by double clicking either the Select or Adjust button.

You should still have the **Text** page on the screen. This contains a sprite frame in the bottom right-hand corner. To try creating a link from this frame to the page about sprites, drag the **Sprites** page icon from the page viewer and drop it on top of the frame. You can check that a link exists by double clicking within the frame - the **Sprites** page should appear at the front of the screen.

Finding pages

Before continuing, tidy up by closing down all the windows currently on the screen. Now, point at the application icon, click the Menu button and choose the **Find** option. One set of radio buttons allows you to choose between the options **Open page** and **To GenFiler.** By default, the former of these is selected. This means that each page found to contain the text will be opened. If, however, you select **To GenFiler** the pages will not be opened. Instead the pages found will be displayed as icons in a page viewer.

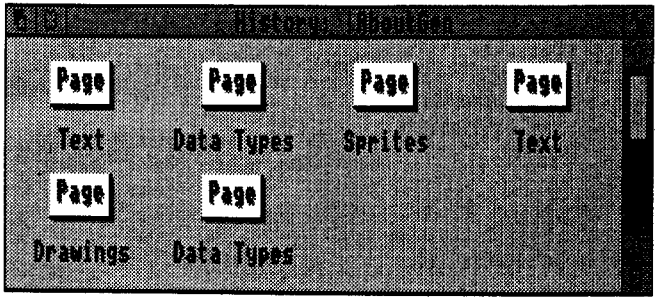
To try this, enter the word **text** into the dialogue box, select **To Genfiler** and **Find all** and click on GO. A page viewer will appear containing the icons of the pages which contain the word **text.** Check this by opening each page up in turn by double clicking on its icon.

Note that the buttons will often be used in the combinations **Find first** and **Open page** or **Find all** and **To Genfiler.** When you are opening pages, it is usually preferable to have them identified one at a time so you have enough time to view each before the next one appears.

However, if you are just sending the pages found to the Filer then it is better to find them all in one go so that they all appear in the same page viewer. You can then view them independently by double clicking on them from the page viewer.

Page history

There is one further option which will create a page viewer. Display the Application menu and click on the **Show → History** option. This displays a page viewer similar to the following:



The pages within the viewer are those which you have viewed since starting up the application. The order of the pages indicates the order in which you viewed them, the most recent appearing first. Hence, you can see that you have only viewed a fraction of the pages available. However, you have viewed some of them more than once.

Example applications

The examples provided with the Genesis Plus system are not meant to be complete applications. They each provide a few pages to illustrate one particular way in which you can use your computer and Genesis to store information and present it in a colourful and interesting way. The following is a brief description of the applications. Each is designed to be used without the need for accompanying documentation. Just start them up and explore.

AboutGen

This provides a description of Genesis itself and illustrates the different types of data which an application can contain. It is described more fully in Chapter 5, *Different Types of Frame*.

AddrBook

This is a simple card-index type database for storing names and addresses. Add your own information about friends and relatives and use the **Find** option on the title page to locate particular cards.

Composers

A musical database! This presents pages about a few composers and allows you to hear some examples of their work. The music is stored in files which can be used with the Maestro music editor supplied with your computer. Using this music editor, you can re-create the masterpieces of more of the great musicians and add them to the collection.

Europe

This geographical example presents a map of Europe and provides further information on individual countries when they are double-clicked on. It is described more fully in Chapter 4, *Running an Existing Application*.

Green

This is a typical electronic book covering green issues. It presents facts about the ozone layer, the greenhouse effect, lead in petrol and acid rain. Of course, there are many other environmental problems and so you may like to add your own information to extend the book.

MyVillage

A simple example illustrating the type of application which can be built up as a project by a group of children. Pages on individual aspects of village life have been created independently and then linked together afterwards in the most appropriate way.

ScrapBk

This is an electronic scrap book. It contains a number of interesting pictures and shows how extra sub-pages can be linked to particular areas of a page. For example, the windows and doors of the house are more interesting than they might first appear!

Treats

Containing simple recipes, this example shows another type of card index system in action. Look through each of the 'tempting tea time treats' in turn to see which takes your fancy. Alternatively, try using the **Find** option described in Chapter 8, *Locating and printing pages* to locate recipes which use a favourite ingredient, such as chocolate.

Extra

This subdirectory contains two sophisticated examples which are only suitable for use on computers with 2 or more Megabytes of memory.

Planets

This is a spectacular application presenting pictures and astronomical data about the objects in our solar system.

Recipes

Similar in idea to the Treats application, this example provides a wider variety of recipes.

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NB **bold** *entries in the index refer to menu and dialogue box options*

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